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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/436,062	11/08/1999	CRAIG W. WARNER	10991087-1	6095

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EXAMINER

FERRIS, DERRICK W

ART UNIT

PAPER NUMBER

2663

DATE MAILED: 06/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/436,062	WARNER, CRAIG W.
	Examiner	Art Unit
	Derrick W. Ferris	2663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 17 May 2004.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 26-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 26-31,34-37,39,41-44,47,48,50,52 and 53 is/are rejected.
- 7) Claim(s) 32,33,38,40,45,46,49,51,54 and 55 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 08 November 1999 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/17/04 has been entered.

Response to Amendment

1. **Claims 26-55** as amended are still in consideration for this application. Applicant has canceled claims **1-25**. Applicant has added claims **26-55**.
2. Examiner withdraws the obviousness rejection to **Galles** in view of **Stallings** and **Galles** in view of **Stallings** in further view of **Hu** for Office action filed **04/01/04**. The rejection is withdrawn since applicant's newly added claims recite specific structure not found in the references.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 26, 27, 34, 36, 37, 43, and 44** are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,577,204 A to *Brewer et al.* ("Brewer").

As to **claim 26**, see figure 1 showing a plurality of processors that operate in parallel (e.g., CPUs 17-1 and 17-2); a plurality of agents comprising agent data ports coupled to respective processors (e.g., see agents 14-1 and 14-2); a plurality of memory units coupled to respective memory controllers (e.g., see memory controller CMC 13-1 and memory units 15-1); and at least one crossbar (e.g., see cross bar 11) comprising cross bar data ports coupled to a plurality of agents via respective cross bar data ports and agent ports.

As to **claim 27**, routing logic is shown in the form of request and response. In addition, see e.g., column 7, lines 1-60.

As to **claim 34**, see e.g., column 7, lines 1-4.

As to **claim 36**, see e.g., column 7, lines 1-4.

As to **claim 37**, see e.g., column 6, lines 11-28.

As to **claim 43**, see e.g., column 6, lines 29-49.

As to **claim 44**, see e.g., column 5, lines 34-40.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 28-31, 39, 41, and 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,577,204 A to *Brewer et al.* (“*Brewer*”) in view of U.S. Patent No. 5,721,819 A to *Galles et al.* (“*Galles*”).

In making a proper obviousness rejection under MPEP 706.02(j), the examiner will address the following four steps:

- a) *the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line numbers where appropriate;*
- b) *the difference of differences in the claim(s) over the applied cited references;*
- c) *the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter; and*
- d) *an explanation why one skilled in the art at the time of the invention was made would have been motivated to make the proposed modification.*

As such to **claim 28**, for step (a) *Brewer* discloses the limitations found in the base claim.

For step (b) *Brewer* is silent or deficient to the further limitation wherein the routing logic decrements a current hop count. In particular, *Brewer* teaches a generic method of routing where the routing word must specify the destination but all that follows can be in any format, see e.g., column 7, lines 55-60.

Galles teaches the further recited limitation above at e.g., column 17, line 1-20 and column 18, lines 19-32. In particular, the routing logic resides in the router 204 or crossbar 408 as shown in figure 4 where in removing the vector field 1312 the current hop count is inherently decremented, see e.g., figure 17.

For step (c), the proposed modification of the above-applied reference(s) necessary to arrive at the claimed subject matter would be to modify *Brewer* to clarify that the generic routing in reference to column 7, lines 55-60 is vector based routing as disclosed by *Galles* since *Galles* teaches vector based routing which decrements a current hop count.

In order to establish a *prima facie* case of obviousness for step (d), three basic criteria must be met. The three criteria according to MPEP 706.02(j) are as follows:

First there must be some suggestion or modification, either in the reference(s) themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

As such, for step (d) examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to include the further limitation decrements a current hop count. In particular, the motivation for modifying the reference or to combine the reference teachings would be for distributed based network routing. In particular, *Galles* cures the above-cited deficiency by providing a motivation found at e.g., *Abstract*. Second, there would be a reasonable expectation of success since *Galles* teaches sending from a hub 208 to another hub 208 through a router 204 where each hub 208 (i.e., in reference to the memory processor unit 12 of *Brewer*) comprises a hub controller 308 (i.e., agent), processors 304 and memory 312, see e.g., figure 3, and each router 204 contains a crossbar 408, see e.g., figure 4, in reference to e.g., figure 16. Here the router or crossbar decrements the current hop count, see e.g., column 18, lines 5-60. Thus the references either in singular or in combination teach the above claim limitation(s).

As to **claim 29**, see similar rejection to claim 27 where the port is stored in the vector field 1312.

As to **claim 30**, see similar rejection to claim 27 to further include return routing as taught e.g., column 17, lines 15-31 and described in detail in Section 4.5.2 starting at bottom of column 18.

As to **claim 31**, see similar rejection to claim 30.

As to **claim 39**, see similar rejection to claim 30.

As to **claim 41**, see e.g., a response packet.

As to **claim 42**, see similar rejection for claim 20 and 41 in reference to return routing. In particular, see e.g., figure 17 of *Galles* where the ports are reversed.

7. **Claims 35, 47, 48, 50, 52, and 53** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,577,204 A to *Brewer et al.* ("*Brewer*") in view of U.S. Patent No., 5,721,819 to *Galles et al.* ("*Galles*") and "Data and Computer Communications" to *Stallings*.

As to **claim 35**, *Galles* is silent or deficient on whether the above-mentioned limitations of a next subsequent node, a current hop count, and a total hop count are found in a packet header. In particular, as mentioned above in the rejection for claim 28, *Galles* either inherently teaches or expressly teaches that these limitations are found in a vector but may be silent as to whether they are found specifically in a header of the packet/vector.

Stallings teaches that it is well known in the art to place such limitations in a packet header.

Thus the examiner purposes to modify the *Galles* reference to further clarify that the above three limitations are placed in a packet header.

Hence examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to place a next subsequent node, a current hop count, and a total hop count in a packet header. One skilled in the art would be motivated to place the vector information in the header portion since the header portion typically contains "routing information" such as address information and hop count. As further support, *Stallings* cures the above-cited deficiency by teaching that it is well known in the art to put a total hop count as well as routing information into a packet header such as an IP header (e.g., see figure 16.7 on page 544 of *Stallings* where the TTL contains the router hops). One motivation for placing this information in a header is so the router can easily locate information within a defined packet structure. Thus *Stallings* provides the support and motivation for why someone skilled in the art would place an egress port, a current hop count and total hop count in a packet header. Furthermore, *Stallings* provides further motivation by disclosing that hop counts are represented as a single field as opposed to being derived from the vector information (e.g., see the TTL field in the IP header in figure 16.7).

As to **claim 47**, see similar rejection for claim 35.

As to **claim 48**, an ingress port is shown e.g., in figure 17 of *Galles*.

As to **claim 50**, decrementing the count is inherently or expressly taught in figure 17 of *Galles* based on the position of the ingress/egress ports with respect to the vector.

As to **claim 52**, see similar rejection to claim 42.

As to **claim 53**, see similar rejection to claim 42. Since the state is shown with respect to the routing vector, the routing vector is independent from the routing table.

Allowable Subject Matter

8. **Claims 32-33, 38, 40, 45, 46, 49, 51, 54 and 55** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (703) 305-4225. The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (703) 308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Derrick W. Ferris
Examiner
Art Unit 2663

DWF

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SUPERVISORY PATENT EXAMINER
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